Aboriginal Affairs and Northern Development Canada
Affaires autochtones et Développement du Nord Canada

Northern Oil and Gas Annual Report

2013

Canada

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The management of oil and gas resources on Crown lands north of latitude 60° N in the Northwest Territories, Nunavut and the northern offshore is a federal responsibility administered by the Northern Petroleum Resources Directorate on behalf of the Minister of Aboriginal Affairs and Northern Development.

Petroleum resource management on Crown lands is exercised under federal legislation. The *Canada Petroleum Resources Act* and its regulations govern the granting and administration of Crown exploration and production rights and set the royalty regime. The *Canada Oil and Gas Operations Act* governs the regulation of petroleum operations and associated benefits requirements. Land, royalty and benefit matters are managed by the Department on behalf of the Minister of Aboriginal Affairs and Northern Development Canada while the National Energy Board takes the lead role in approval of operations.

Information on northern petroleum resource management may be found at *www.aadnc-aandc.gc.ca/nth/og/index-eng.asp*.

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Message from the Honourable Bernard Valcourt, PC, MP
Minister of Aboriginal Affairs and Northern Development

I am pleased to table before Parliament the annual report on the administration of oil and gas in the Northwest Territories, Nunavut and northern offshore for the year ending December 31, 2013.

Northern Canada is rich in oil and natural gas resources. An estimated one-quarter of the country's discovered conventional oil and one-third of the country's natural gas are in the North. Developing these natural resources in a responsible and environmentally sound manner is a priority for Canada.

In 2013, industry and government continued to collaborate with Northern partners to advance knowledge to support responsible resource development in the North. Initiatives include the Beaufort Regional Environmental Assessment in the third year of a $21.8 million, five-year program; and the Environmental Studies Research Fund, which directs research focused on exploration regions through levies on lands held by industry.

On April 1, 2014, the Government of the Northwest Territories assumed responsibility for land and resources management in the territory with the Northwest Territories Devolution Agreement coming into effect. This includes responsibilities for management of onshore oil and gas reserves. Offshore oil and gas reserves remain under federal authority.

The responsible management of Canada's Northern petroleum resources supports the Government of Canada's Northern Strategy to ensure the North achieves its true promise as a healthy, prosperous region within a strong and sovereign Canada.

I invite you to consult this report for further details on the exploration and development of Canada's Northern oil and gas resources over the past year.

Bernard Valcourt

April 2014

Frontier Lands[1] under the administrative responsibility of the Minister of Aboriginal Affairs and Northern Development

[1] As illustrated above, for the reporting period of 2013, "frontier lands" were defined under section 2 of the *Canada Petroleum Resources Act*, as follows:

"frontier lands" means lands that belong to Her Majesty in right of Canada, or in respect of which Her Majesty in right of Canada has the right to dispose of or exploit the natural resources, and that are situated in

a) the Northwest Territories, Nunavut or Sable Island, or

b) submarine areas, not within a province, in the internal waters of Canada, the territorial sea of Canada or the continental shelf of Canada, but does not include the adjoining area, as defined in section 2 of the *Yukon Act*.

In accordance with the *Northwest Territories Lands and Resources Devolution Agreement* and the *Northwest Territories Devolution Act*, on April 1, 2014, the Government of Canada transferred administration and control of public lands, resources and rights in respect of waters in the Northwest Territories to the Commissioner of the Northwest Territories.

Table of Contents

NORTHERN OIL AND GAS PROGRAM SUMMARY 7
Overview 7
2013 In Brief 8
Rights Management 8
Operations 9
Production 9
Royalties 9
Benefits 9
Environmental Studies Research Fund 9
Beaufort Regional Environmental Assessment 9
Oil and Gas Resources 10
OIL AND GAS MANAGEMENT 11
Right Issuance 11
2013 Call Cycles 13
Central Mackenzie Valley 13
Arctic Islands of Nunavut 14
Beaufort Sea and Mackenzie Delta 14
Issuance and Terminations 18
Revenues from Administration of Interests 21
Benefits 22
EXPLORATION ACTIVITIES IN THE NORTH 22
Southern Northwest Territories 23
Central Mackenzie Valley 23
PRODUCTION 24
Norman Wells 24
Ikhil 25
Cameron Hills 25
Nunavut and Arctic Offshore 26
Summary 26
ROYALTIES 27
Audits and Assessments 27
FURTHER INFORMATION 28
Northern Petroleum And Mineral Resources Branch 28
Other Sources Of Information 30
National Energy Board 30
Northwest Territories Geosciences Office 30
Geological Survey of Canada 30

List of Tables

Table 1: Oil and Gas Resources 11
Table 2: Land Disposition as of December 31, 2013 15
Table 3: Exploration Licences 19
Table 4: Revenues from Administration of Interests ($) 2009-2013 21
Table 5: Drilling Statistics 2013 23
Table 6: Seismic Acquisition 2004-2013 24
Table 7: Oil and Gas Production 2010-2013 26
Table 8: Royalties ($) Received 2009-2013 27

List of Figures

Figure 1: Central Mackenzie Valley Region 13
Figure 2: Beaufort Sea and Mackenzie Delta Region 14
Figure 3: Key Operating Areas in the Western Arctic 22
Figure 4: Wells Drilled 2003-2004 to 2012-2013 24
Figure 5: Norman Wells Oil Production 2013 25
Figure 6: Oil Production 2004-2013 26
Figure 7: Natural Gas Production 2004-2013 27

Northern Oil and Gas Annual Report 2013

NORTHERN OIL AND GAS PROGRAM SUMMARY

OVERVIEW

Much of Canada's North has high geological potential for oil and gas offering diverse opportunities for petroleum exploration companies. Onshore, the northern extension of the prolific Western Canada Sedimentary Basin extends from 60° N to the Beaufort Sea and provides ample exploration interest for both conventional and unconventional reservoirs.

Extending offshore, the proven resources of the Beaufort Sea and Mackenzie Delta represent the most explored fraction of Canada's extensive Arctic continental margin bordering the Arctic Ocean in the west and Baffin Bay in the east. The oil and gas potential of Canada's Arctic Islands is already proven by several major gas discoveries in earlier phases of exploration. Modern exploration methods could expect to boost this potential towards economic thresholds.

Issuance of exploration licences by the Minister of Aboriginal Affairs and Northern Development initiates the cycle of exploration. Typically, exploration activities progress from seismic programs to identify favourable well locations, followed by drilling which can lead to discoveries and eventual development. With licence in hand, a company can invest in exploration with the confidence that licensing confers the right to develop and produce what they discover.

Opening lands to issuance is the first step in encouraging economic development from exploration activity. Currently, only certain regions of the Northwest Territories and Nunavut with high petroleum potential are regularly opened for industry to nominate and acquire exploration rights. To sustain investment, regular opportunities for industry to bid and win new exploration licences are key. Each new cycle of Calls for Nominations and Bids ensures that new companies can acquire lands on a fair, competitive basis to test new methods and explore new exploration targets such as unconventional resources in shale.

Regular opportunities to acquire Exploration Licences

Once an exploration licence is awarded, the successful company can pursue exploration activities subject to meeting the regulatory requirements governing operations, including comprehensive safety planning and financial assurance. Operational authorizations are issued by the National Energy Board subject to environmental screening and assessment as may be required for the specific project.

This year saw acquisition of one exploration licence in the Central Mackenzie Valley of the Northwest Territories. The new licence adjoins the 14 licences acquired in this region over recent Calls for Bids by companies actively exploring the Canol Shale play. An area of over 1.2 million hectares is currently under licence covering this region of intense exploration interest northwest and southeast of the North's largest producing oil field at Norman Wells. Four wells were drilled in the Central Mackenzie Valley and one seismic program was undertaken during 2013. This activity generated employment benefits and business opportunities, building capacity in Mackenzie Valley communities.

An active exploration of the shale play

Outside the Mackenzie Valley, no new exploration licences were acquired in the North in 2013 and no seismic or drilling operations were conducted on existing licences. Seismic data acquired over previous years can be used by companies to evaluate their existing licences in the Beaufort Sea and no further work proved necessary this year.

A concentration of exploration licences in the Beaufort Sea is focused in the deeper water areas unexplored in earlier phases of exploration. Globally, deep water exploration along continental margins has been a particularly successful target for offshore drilling. Late in the year, a drilling proposal was filed by Imperial Oil as operator of Beaufort Sea exploration licences EL476 and EL477 describing a plan to drill towards the end of the decade. The proposal was entering environmental assessment at year end.

Industry and government continues to collaborate with northern partners to advance knowledge to support responsible resource development in the North. Initiatives include the Beaufort Regional Environmental Assessment which is in the third year of a $21.8 million, five-year program; and the Environmental Studies Research Fund, which directs research focused on exploration regions such as the Central Mackenzie Valley, through levies on lands held by industry. In the eastern Arctic, discussions continued with Inuit organizations, federal and territorial governments, and relevant stakeholders to advance a strategic environmental assessment to support decisions regarding future issuance of exploration rights in the offshore area.

Responsible resource development in the North

2013 IN BRIEF

Rights Management

Two Calls for Bids in the Central Mackenzie Valley and in the Arctic Islands of Nunavut closed on September 17, 2013. One exploration licence was issued to International Frontier Resources Corporation in the Central Mackenzie Valley. No bids were received for the parcel offered as a significant discovery licence in the Arctic Islands of Nunavut.

Operations

Three wells were drilled and suspended in the Central Mackenzie Valley. A fourth well was spudded in the area at the end of December 2013 and reached its target depth in the following month. The four wells add up to a total drilled depth of 6,161 metres in 2013.

One ongoing seismic survey continued in the Central Mackenzie Valley with a total of 71 kilometres of 2-D seismic. No other exploration activities were recorded elsewhere in the North.

Production

The total aggregate oil production in 2013 was of 4.1 million barrels (654.4×10^3 m^3), a 13% decrease from 2012. Total aggregate natural gas production in the Northwest Territories in 2013 was of 4.7 billion cubic feet (133.0×10^6 m^3), a 18% decrease from the previous year.

Royalties

Royalties received in the 2013 calendar year from oil and gas production on northern frontier lands amounted to $10,046,685.

Benefits

In 2013, the Department of Aboriginal Affairs and Northern Development Canada finalized new Benefits Plan Guidelines for the North. These Guidelines are now in effect. They will assist operators to develop a Benefits Plan that meets the requirements of the *Canada Oil and Gas Operations Act* and the *Canada Petroleum Resources Act*.

Environmental Studies Research Fund

The Environmental Studies Research Fund (ESRF) is a provision of the *Canada Petroleum Resources Act*, and is funded through levies applied to oil and gas lands held by companies under licence. In 2013, the ESRF Management Board approved funding for five new research studies in the North, in both the Central Mackenzie Valley and Beaufort Sea and Mackenzie Delta Regions. These environmental studies are related to the exploration, development and production of oil and gas resources on frontier lands. The budget approved by the Minister for these northern studies, based upon the recommendations of the Board, was $1,995,000. More details on ESRF, including annual reports and publications can be found at *www.esrfunds.org*.

Five new research studies focused on the exploration, development and production of oil and gas in the North

Beaufort Regional Environmental Assessment

The Beaufort Regional Environmental Assessment (BREA) continued to build regional knowledge and information in support of its goals of ensuring preparedness for offshore oil and gas in the Beaufort Sea. Research and working group progress and results were shared through

meetings in the Inuvialuit Settlement Region and through reports and other publications. The third year of the program saw ongoing participation and engagement of stakeholders, representing Inuvialuit, industry, and government organizations. Issues related to oil spill preparedness and response, waste management, climate change, socio-cultural and economic indicators, and cumulative effects were advanced in the last year. More details on BREA, including reports and publications can be found at: *www.beaufortrea.ca.*

OIL AND GAS RESOURCES

Approximately 38%[2] of Canada's remaining marketable resources of natural gas in conventional fields are located in northern Canada, as well as 35% of the remaining light crude[3]. This slight increase in the percentage of natural gas assigned to the North over the last year reflects a downward revision, by the National Energy Board, of the remaining conventional natural gas in the southern Western Canada Sedimentary Basin. This new estimate also includes unconventional gas resources (which were not included in 2012), effectively tripling resources assigned to tight and shale gas resources. If unconventional numbers are added to conventional gas numbers, the northern Canada portion of remaining natural gas resources drops to 11%.

Regional estimates of Canada's northern discovered resources are listed in Table 1. These are totals for conventional oil and gas resources in discovered fields and do not include estimates of potential in undrilled prospects and basins. Ultimate potential (which includes discovered resources and undiscovered potential) is estimated at about 12 billion barrels (1.91×10^9 m^3) of recoverable oil and 150 trillion cubic feet (4.25×10^{12} m^3) of gas but much uncertainty remains about the resource potential in many of Canada's northern petroleum basins, especially those which have yet to be tested.

An ultimate potential of 12 billion barrels of oil and 150 trillion cubic feet of gas

Unconventional hydrocarbon resources are attracting oil and gas industry investment in the Mackenzie Valley. These potential resources include shale gas and shale oil in the extensive high-quality Devonian Canol Formation, a source rock known to have generated the oil in the major Norman Wells field nearby. Exploration activities for shale oil in the area between Norman Wells and Tulita are likely to generate information to allow quantitative estimates of unconventional resources in the future, but in the absence of this information no unconventional resources have been included in Table 1.

No estimates for unconventional resources in the North have been released by either the Geological Survey of Canada or the National Energy Board.

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[2] This estimate does not include resources in the portion of the Western Canada Sedimentary Basin that extends to the southern part of the Northwest Territories.

[3] National Energy Board, Canada's Energy Futures 2013.

Table 1: Oil and Gas Resources

Region	Crude Oil		Natural Gas	
	10^6 m^3	Million Barrels	10^9 m^3	Trillion cubic feet
Northwest Territories and Arctic Offshore	187.9	1,182.3	457.6	16.2
Nunavut and Arctic Offshore	51.3	322.8	449.7	15.9
Arctic Offshore Yukon	62.5	393.3	4.5	0.2
Total	301.7	1,898.3	911.8	32.2

- Resources are 'recoverable': standard recovery factors have been applied - totals have been risked where conceptual (undrilled) plays are included in potential estimates.
- Adapted from Table 2 in Drummond, K.J. 2009, Northern Canada Distribution of Ultimate Oil and Gas Resources. Available at *www.drummondconsulting.com/NCAN09Report.pdf*. Compiled and integrated from several published sources which may underestimate or overestimate actual field resources. Volumes and distribution should be regarded as approximate and reflect the opinion of the consultant.
- Note that discovered gas volumes do not include estimates for recent discoveries (at Ellice I-48, Olivier H-01, Langley K-30, Langley E-07, Kurk M-15 and Ellice J-27 in the Mackenzie Delta, and Summit Creek B-44, Stewart D-57, Lac Maunoir C-34 and Nogha C-49 in the Central Mackenzie Valley).
- Note: Numbers in the table may not add up due to rounding.
- Note: Conversion factors between metric and imperial obtained from the National Energy Board.

OIL AND GAS MANAGEMENT

RIGHT ISSUANCE

The Minister of Aboriginal Affairs and Northern Development provides industry with an annual opportunity to obtain exploration rights in the Northwest Territories, Nunavut and the northern offshore. The exploration rights are issued pursuant to the *Canada Petroleum Resources Act* which provides for an open, competitive bidding process. In accordance with the provisions of land claim agreements, the views and support of Aboriginal communities and organizations on the terms and conditions of the issuance and related matters are sought prior to rights issuance. Similarly, the Department consults and engages territorial governments and other federal bodies for environmental sensitivity information. After consideration of responses received, the areas opened for exploration may be adjusted from year to year.

The rights issuance process is based on a single, quantifiable bidding criterion

A Call for Nominations normally precedes each Call for Bids, allowing industry to specify lands of interest for inclusion in a subsequent Call for Bids process. Calls for Bids are open for the statutory minimum of 120 days, and are published in Part I of the *Canada Gazette*. The rights issuance process is based on a single, quantifiable bidding criterion with rights going to the best bid. The Minister has authority to reject any and

all bids. Currently, the bidding criterion for exploration licences is the work proposal bid, which is the total amount of money that the bidder proposes to spend doing exploratory work on the parcel within a specified period. The winning bidder is issued an exploration licence of up to nine years, comprising two periods. The exploration licence holder is expected to spend the dollar value of the work proposal bid during the first period of the licence and is required to drill at least one well in order to maintain tenure for the second period.

When exploration results in a petroleum discovery, the legislation provides that application may be made for a declaration of significant discovery. The declaration process, administered by the National Energy Board, confirms a hydrocarbon discovery which satisfies specific technical criteria and describes the extent of discovery. The issuance of a significant discovery licence for lands covering the extent of the discovery is possible either:

a) upon application of the interest owner of an exploration licence subject to all or a portion of the significant discovery area, or
b) by award to the successful bidder following a Call for Bids in relation to all or a portion of the significant discovery area.

The Significant Discovery Licence rewards exploration by allowing indefinite tenure to the petroleum discovery

The significant discovery licence rewards exploration by allowing for indefinite tenure to the petroleum discovery, recognizing that some discoveries may not be immediately economic to produce. A significant discovery licence may be subject to a drilling order pursuant to section 33 of the *Canada Petroleum Resources Act*.

Once a developer has determined that a discovery is commercial and wishes to commence oil or gas production, legislation allows for application to the National Energy Board for a declaration of commercial discovery. Similar to the provisions for issuance of a significant discovery licence, issuance of a production licence is possible either:

a) upon application of the interest owner of an exploration licence or significant discovery licence subject to all or a portion of the commercial discovery area; or,
b) by award to the successful bidder following a Call for Bids in relation to all or a portion of the commercial discovery area.

A 25-year Production Licence, renewable so long as commercial production continues

A production licence has a term of 25 years which is renewable so long as commercial production continues. A company may proceed directly to commercial discovery and a production licence without the intervening step of obtaining a significant discovery licence.

Current oil and gas disposition maps are available on the Aboriginal Affairs and Northern Development Canada website at *www.aadnc-aandc.gc.ca/eng/1100100036125*.

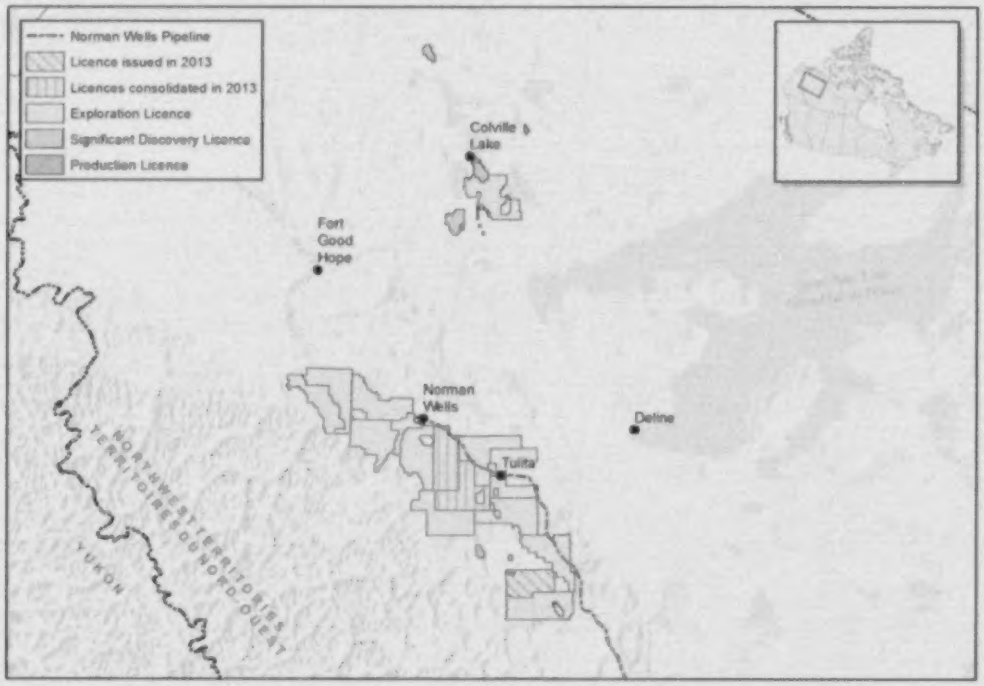
2013 CALL CYCLES

In 2013, the Northern Petroleum Resources Directorate undertook a review of its administrative practices for the issuance of oil and gas rights. Changes that were implemented include the increase of the bid deposit from $10,000 to $50,000 and the modification of the timing to submit the issuance fee; now only required from the winning bidder with its work deposit, rather than from all bidders when they submit their bids.

Central Mackenzie Valley

The Call for Nominations closed on April 24, 2013 with seven parcels nominated. Each parcel was included in the Call for Bids which was launched on May 18, 2013 and closed on September 17, 2013. On June 26, 2013, the Call for Bids was amended by the removal of one parcel. Bids were received for two of the remaining six parcels, however, only one exploration licence was issued. The successful bidder for one parcel failed to provide the required issuance fee and work deposit by the prescribed date, as a result, this bid was disqualified and bid deposit forfeited.

Figure 1: Central Mackenzie Valley Region



Arctic Islands of Nunavut

Although industry did not respond to the Call for Nominations for exploration licences, launched on February 25, 2013, a Call for Bids to obtain a significant discovery licence for the Bent Horn oil field was launched on May 18, 2013, with a closing date of September 17, 2013. Unique to this Call for Bids, the significant discovery licence was offered using a cash bidding criterion and included an incremental rental provision. No bids were received.

Beaufort Sea and Mackenzie Delta

The Call for Nominations, which closed on September 24, 2013, attracted the posting of one parcel in the shallow Beaufort Sea. The parcel was included in a Call for Bids which was launched on October 19, 2013, with a closing date of February 25, 2014.

Figure 2: Beaufort Sea and Mackenzie Delta Region

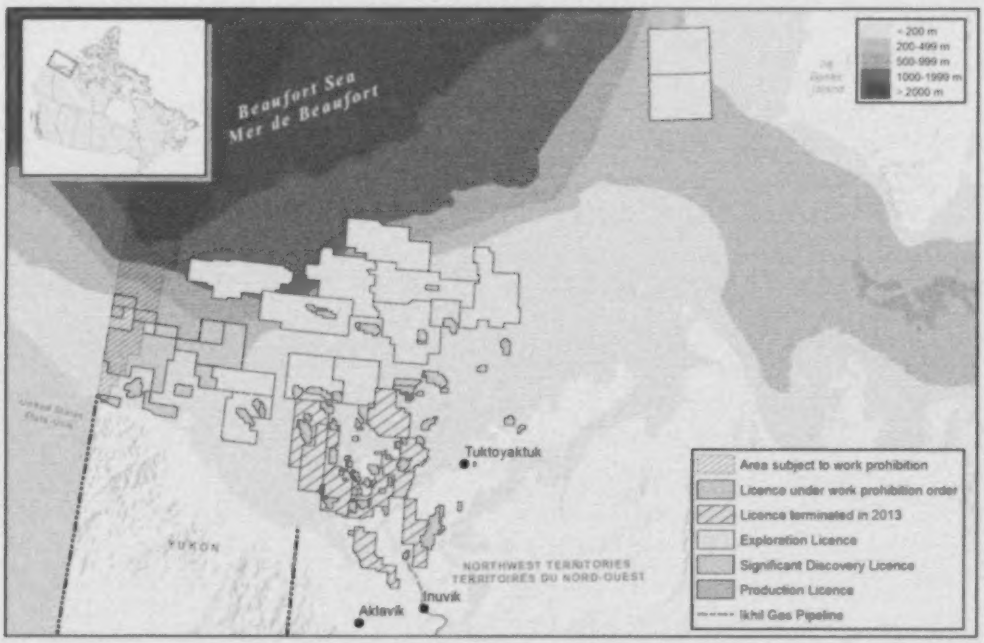


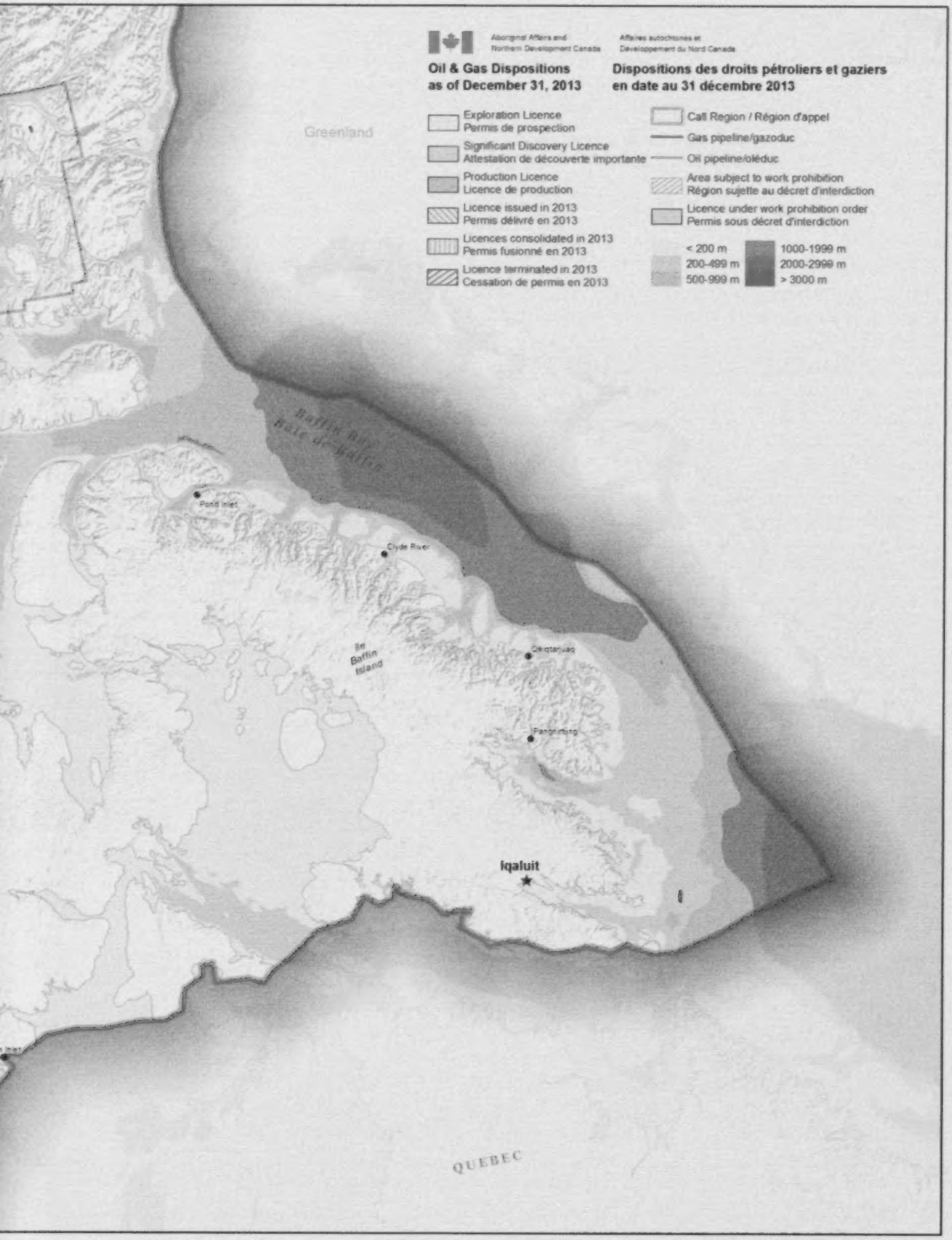
Table 2: Land Disposition as of December 31, 2013

Region	Exploration Licence	Significant Discovery Licence	Production Licence	Former Rights [1]	Total
In hectares					
Arctic Islands of Nunavut	0	332,882	0	0	332,882
Eastern Arctic Offshore	0	11,184	0	862,500	873,684
Hudson Bay [2]	0	0	0	126,376	126,376
Beaufort Sea	2,780,504	205,636	0	0	2,986,140
Mackenzie Delta	0	134,109	3,423	0	137,532
Central Mackenzie Valley	1,280,375	52,725	0	654	1,333,754
Southern Northwest Territories	0	65,729	32,842	21,107	119,678
Total	4,060,879	802,265	36,265	1,010,637	5,910,046

Region	Exploration Licence	Significant Discovery Licence	Production Licence	Former Rights [1]	Total
By Interest Type (number of licences)					
Arctic Islands of Nunavut	0	20	0	0	20
Eastern Arctic Offshore	0	1	0	30	31
Hudson Bay [2]	0	0	0	8	8
Beaufort Sea	15	38	0	0	53
Mackenzie Delta	0	38	2	0	40
Central Mackenzie Valley	15	11	0	6	32
Southern Northwest Territories	0	31	21	8	60
Total	30	139	23	52	244

- [1] Permits and/or Leases issued under former legislative regimes pursuant to ss. 112(2) of the *Canada Petroleum Resources Act*.
- [2] Permits onshore islands in northern Hudson Bay are under the jurisdiction of the Department of Aboriginal Affairs and Northern Development Canada. Offshore permits in Hudson Bay (not included in this table) are under the jurisdiction of Natural Resources Canada.

Beaufort Sea
Mer de Beaufort
United States
États-Unis
Arctic Islands of Nunavut
Archipel arctique du Nunavut
Ile Banks Island
Resolute
Beaufort Sea & Mackenzie Delta
Mer de Beaufort & delta du Mackenzie
Aklavik
Fort McPherson
Tsiigehtchic
Ile Victoria Island
Colville Lake
Fort Good Hope
Cambridge Bay
Central Mackenzie Valley
Partie centrale de la vallée Mackenzie
Norman Wells
Deline
YUKON
NORTHWEST TERRITORIES
TERRITOIRES DU NORD-OUEST
NUNAVUT
Yellowknife
Fort Liard
Cameron Hills
BRITISH COLUMBIA
COLOMBIE-BRITANNIQUE
ALBERTA


Aboriginal Affairs and Northern Development Canada
Affaires autochtones et Développement du Nord Canada
Oil & Gas Dispositions as of December 31, 2013
Dispositions des droits pétroliers et gaziers en date au 31 décembre 2013
Exploration Licence
Permis de prospection
Significant Discovery Licence
Attestation de découverte importante
Production Licence
Licence de production
Licence issued in 2013
Permis délivré en 2013
Licences consolidated in 2013
Permis fusionné en 2013
Licence terminated in 2013
Cessation de permis en 2013
Call Region / Région d'appel
Gas pipeline/gazoduc
Oil pipeline/oléduc
Area subject to work prohibition
Région sujette au décret d'interdiction
Licence under work prohibition order
Permis sous décret d'interdiction
< 200 m
200-499 m
500-999 m
1000-1999 m
2000-2999 m
> 3000 m
Greenland
Baffin Bay
Baie de Baffin
Pond Inlet
Clyde River
Île Baffin
Baffin Island
Qikiqtarjuaq
Pangnirtung
Iqaluit
QUEBEC

Issuance and Terminations

In 2013, ten interests were issued and ten interests terminated.

Exploration Licences

Exploration licence EL495 was issued to International Frontier Resources Corporation as a result of the Central Mackenzie Valley Call for Bids.

Exploration licences EL462 and EL463 were terminated by surrender and exploration licence EL494 was issued to Husky Oil Operations Limited pursuant to subsection 25(3) of the *Canada Petroleum Resources Act* which provides for the consolidation of one or more exploration licences.

With respect to the remaining eight terminations, exploration licences EL456, EL457, EL458, EL459, EL461, EL482, EL484 and EL490, were, at the request of the Minister, surrendered by the interest owner and their associated work deposits were returned. These licences were issued in error, entitling the interest holder to the return of the work deposit for these particular licences. Table 3 as well as Figures 1 and 2 lists and illustrate exploration licences disposition for 2013.

Oil and Gas Leases

Oil and gas leases numbers 703-70, 704-70, 705-70, 707-R-70, 708-R-70, 709-R-70, 710-R-70 and 838-70, originally issued in the 1970s under the *Canada Oil and Gas Land Regulations* and currently held by Lone Pine Resources Canada Ltd., were renewed for a further term of 21 years. The National Energy Board commercial discovery declaration of May 1, 2013, substantiated the view that the lease areas were capable of producing oil and gas. The renewal was under section 62 of the *Canada Oil and Gas Land Regulations*, and subsection 114(4) of the *Canada Petroleum Resources Act*.

A public registry of petroleum interests and instruments

The Department maintains a public registry of petroleum interests and instruments registered under Part VIII of the *Canada Petroleum Resources Act*. This is the official record of rights holders and any transfer of rights or change of ownership must be registered. Monthly registry activity reports are available at *www.aadnc-aandc.gc.ca/eng/ 1100100036878*.

Table 3: Exploration Licences

Licence	Area (ha)	Representative [1]	Effective Date	End of Period 1 [2]	Expiry Date	Work Proposal Bid ($) [3]
Beaufort Sea and Mackenzie Delta						
EL317 [4]	175,810	Talisman Energy Inc.	5-Oct-1986	N/A		N/A
EL329 [4]	349,981	BP Canada Energy Resources Company	5-Sep-1987	N/A		N/A
EL476	205,321	Imperial Oil Resources Ventures Limited	1-Sep-2012	31-Jul-2017	31-Jul-2019	585,000,000
EL477	202,380	Imperial Oil Resources Ventures Limited	1-Sep-2012	30-Sep-2018	30-Sep-2020	1,180,100,000
EL478	205,359	BP Exploration Operating Company Limited	1-Sep-2012	30-Sep-2018	30-Sep-2020	15,100,000
EL479	203,635	BP Exploration Operating Company Limited	1-Sep-2012	30-Sep-2018	30-Sep-2020	1,100,000
EL480	108,185	Chevron Canada Limited	1-Sep-2012	31-Oct-2015	31-Oct-2019	1,010,100
EL481	205,946	Chevron Canada Limited	1-Sep-2012	31-Aug-2019	31-Aug-2021	103,300,000
EL483	196,497	ConocoPhillips Canada Resources Corp.	1-Sep-2012	30-Sep-2018	30-Sep-2020	2,543,896
EL485	120,814	Franklin Petroleum Canada Limited	1-Sep-2012	31-Aug-2019	31-Aug-2021	1,000,000
EL488	134,142	Franklin Petroleum Canada Limited	6-Mar-2013	5-Mar-2020	5-Mar-2022	1,251,088
EL489	93,483	Franklin Petroleum Canada Limited	6-Mar-2013	5-Mar-2018	5-Mar-2022	1,251,088
EL491	201,101	Franklin Petroleum Canada Limited	6-Mar-2013	5-Mar-2020	5-Mar-2022	1,251,088
EL492	187,200	Franklin Petroleum Canada Limited	6-Mar-2013	5-Mar-2020	5-Mar-2022	1,251,088
EL493	190,650	Franklin Petroleum Canada Limited	6-Mar-2013	5-Mar-2020	5-Mar-2022	1,251,088
Licence termination (by expiry or surrender) in 2013						
EL456	73,391	MGM Energy Corp.	5-Jan-2011	4-Jan-2016	4-Jan-2020	1,697,000
EL457	67,284	MGM Energy Corp.	5-Jan-2011	4-Jan-2016	4-Jan-2020	1,530,000
EL458	75,244	MGM Energy Corp.	5-Jan-2011	4-Jan-2016	4-Jan-2020	1,299,600
EL459	74,618	MGM Energy Corp.	5-Jan-2011	4-Jan-2016	4-Jan-2020	1,160,000
EL461A [5]	50,552	MGM Energy Corp.	14-Mar-2011	2-Jun-2013	2-May-2015	41,923,636
EL461B [5]	41,323				2-Jun-2017	
EL482	103,711	ConocoPhillips Canada Resources Corp.	29-Aug-2012	28-Jun-2015	28-Jun-2019	12,084,131
EL484	90,381	Franklin Petroleum Canada Limited	1-Sep-2012	31-Aug-2017	31-Aug-2021	1,000,000
EL490	99,324	Franklin Petroleum Canada Limited	6-Mar-2013	5-Mar-2018	5-Mar-2022	1,251,088

Table 3: Exploration Licences (continued)

Licence	Area (ha)	Representative [1]	Effective Date	End of Period 1 [2]		Expiry Date	Work Proposal Bid ($) [3]
Central Mackenzie Valley - Mainland							
EL455	80,240	MGM Energy Corp.	5-Jan-2011	4-Jan-2016		4-Jan-2020	1,699,990
EL466 [5]	82,100	MGM Energy Corp.	15-Jan-2011	9-May-2012	✓	09-Jul-2016	5,487,626
EL467	87,948	Shell Canada Limited	20-Dec-2011	19-Dec-2016		19-Dec-2020	18,296,208
EL468	87,117	Shell Canada Limited	20-Dec-2011	19-Dec-2016		19-Dec-2020	18,098,660
EL469	26,533	Shell Canada Limited	20-Dec-2011	19-Dec-2016		19-Dec-2020	7,049,269
EL470	87,495	ConocoPhillips Canada Resources Corp.	20-Dec-2011	19-Dec-2016	✓	19-Dec-2020	66,712,035
EL471	88,848	Imperial Oil Resources Ventures Limited	20-Dec-2011	19-Dec-2016		19-Dec-2020	21,500,003
EL472	90,632	Imperial Oil Resources Ventures Limited	20-Dec-2011	19-Dec-2016		19-Dec-2020	21,500,003
EL473	82,643	MGM Energy Corp.	20-Dec-2011	19-Dec-2016		19-Dec-2020	1,512,122
EL474	86,602	MGM Energy Corp.	20-Dec-2011	19-Dec-2016		19-Dec-2020	1,502,503
EL475	85,288	MGM Energy Corp.	20-Dec-2011	19-Dec-2016		19-Dec-2020	2,021,213
EL486	69,649	Shell Canada Limited	18-Dec-2012	17-Dec-2017		17-Dec-2021	76,864,864
EL487	84,504	Shell Canada Limited	18-Dec-2012	17-Dec-2017		17-Dec-2021	15,276,444
Licences issued in 2013							
EL494 [5]	174,782	Husky Oil Operations Limited	29-Aug-13	29-Aug-16	✓	29-Aug-20	376,000,000
EL495	65,994	International Frontier Resources Corporation	16-Mar-14	15-Mar-19		15-Mar-23	1,200,000
Licence termination (by expiry or surrender) in 2013							
EL462 [6]	87,748	Husky Oil Operations Limited	30-Aug-2011	29-Aug-2016		29-Aug-2020	188,000,000
EL463 [6]	87,034	Husky Oil Operations Limited	30-Aug-2011	29-Aug-2016		29-Aug-2020	188,000,000

- [1] These representatives are current as of December 31, 2013.
- [2] Per the original licence, Period 1 may be extended using drilling deposits or through amendment to the licence.
- [3] Work Bids rounded to the nearest $.
- [4] Under work prohibition orders pursuant to paragraph 12(1)(a) of the *Canada Petroleum Resources Act*.
- [5] Consolidation as per subsection 25(3) of the *Canada Petroleum Resources Act*.
- [6] Pursuant to subsection 25(3) of the *Canada Petroleum Resources Act*, Licences EL462 & EL463 were terminated and replaced by a new consolidated licence EL494.
- ✓ Well requirement met. The drilling of one exploratory or delineation well prior to the end of Period 1 of the term is a condition precedent to obtaining tenure to Period 2.

Revenues from Administration of Interests

The Department holds financial security deposits with respect to exploration licences. Following a Call for Bids for exploration licences, successful bidders are required to post 25% of the work proposal bids as security against the performance of work. This deposit is referred to as the work deposit. The Deposit is refundable as expenditures are incurred within Period 1 of the term. Since work deposits represent 25% of the total bid amount, refunds are likewise prorated on the basis of 25% of the allowable expenditures incurred. Any work deposit balance remaining at the end of Period 1 is forfeited.

Financial security deposits as security against the performance of work

Period 2 exploration licences carries rental obligations. Period 2 rentals are also refundable as expenditures are incurred at the rate of one dollar refund for one dollar of allowable expenditure.

Financial deposits held for Period 1 work deposits and Period 2 rentals as of December 31, 2013 totaled $617,885,139.

Non-refundable rentals are revenues collected from oil and gas leases issued under the *Canada Oil and Gas Land Regulations*. These are payable annually, in advance of the anniversary date of the leases.

Pursuant to section 15 of *Frontier Lands Registration Regulations*, various fees for services are payable, such as for the issuance of new exploration licences, registration of instruments or provision of copies of abstracts.

Table 4 outlines revenues from administration of interests in 2013.

Table 4: Revenues from Administration of Interests ($) 2009-2013

	2009*	2010	2011	2012	2013
Non refundable rentals (Leases) [1]	62,749	61,127	53,195	53,195	53,195
Fees [2]	5,467	16,872	35,487	43,497	8,832
Forfeitures [3]	2,054,238	770,372	25,784,658	1,631,597	50,000
Total	2,122,454	848,371	25,873,340	1,728,289	112,027

- [1] Leases issued under the *Canada Oil and Gas Land Regulations* and continue in force pursuant to section 114 of the *Canada Petroleum Resources Act*.
- [2] Issuance fees and fees for service (section 15 of the *Frontier Lands Registration Regulations*).
- [3] Forfeiture revenues come from bid deposits, drilling deposits as well as work deposits and rentals which were not offset by work expenditures in either Period 1 or 2 of an exploration licence.
- * Revenue adjustments, correction to financial coding.

Benefits

A Benefits Plan is a documented commitment by a company to provide employment and business opportunities to Canadians

Subsection 5.2 of the *Canada Oil and Gas Operations Act* and section 21 of the *Canada Petroleum Resources Act* requires that a Benefits Plan be approved by the Minister of Aboriginal Affairs and Northern Development before authorization of any oil and gas work or activity or approval of a development plan relating to a pool or field in the Northwest Territories, Nunavut and Arctic offshore within the area of the Minister's administrative responsibility.

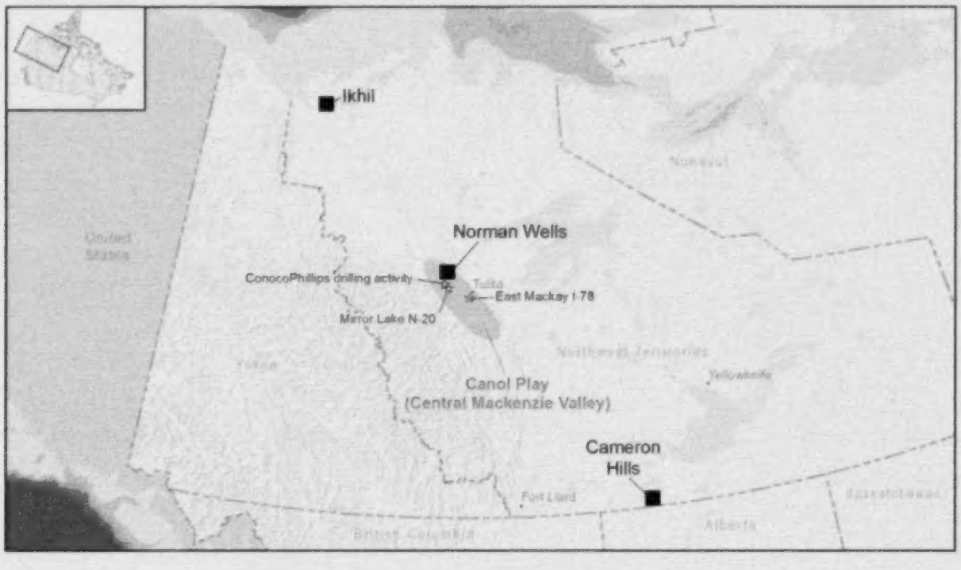
A Benefits Plan represents a documented commitment by a company to provide employment to Canadians and full and fair opportunity to Canadian businesses. A Benefits Plan should include a detailed description of the proposed project as well as the major components, activities and milestones; supporting maps, tables and figures; and time frames. A company is encouraged to give first consideration to local northern Aboriginal and other northern residents and businesses.

EXPLORATION ACTIVITIES IN THE NORTH

In 2013, four new exploration wells were drilled in the Central Mackenzie Valley to a total drill depth of 6,161 metres. In addition, five previously drilled wells were re-entered for work-over, re-completion or abandonment. There was no development drilling in 2013.

There was one geophysical field operation in 2013 which was located in the Central Mackenzie Valley. Figure 3 outlines the key operating areas in the North in 2013.

Figure 3: Key Operating Areas in the Western Arctic



Southern Northwest Territories

In 2013, there were no new exploration or development wells drilled or seismic acquired in the southern Northwest Territories. In the Liard field, one well was re-entered by Paramount Resources Ltd. and, in the producing Cameron Hills field, one well was re-entered for well work by Strategic Oil & Gas Ltd.

Four new wells for a total depth of 6,161 metres

Central Mackenzie Valley

In 2013, ConocoPhillips Canada Resources Corp. drilled three wells in the Tulita District: Loon Creek O-06, Mirror Lake P-20 and Dodo Canyon E-76. MGM Energy Corp. also drilled one well in the Tulita district: East MacKay I-78. Two wells were re-entered by Husky Oil Operations Limited for completion in the same area and MGM Energy Corp. re-entered its East Mackay I-78 well. There were no new development wells drilled in the Normans Wells Field.

Explor Geophysical Ltd continued a 2-D seismic program in the Tulita District that had begun near the end of 2011. This non-exclusive program was suspended in April 2013 and collected 71 kilometres of 2-D seismic.

Tables 5 and 6 as well as Figure 4 outline drilling and seismic data in the North for 2013.

Table 5: Drilling Statistics 2013

Well name	Lat (NAD 27)	Long (NAD 27)	Class[1]	Total Depth (m)	Metres Drilled 2013	Begun	Rig Released	Well Status[2]	Interest[3]
Southern Northwest Territories									
Re-Entries of previously drilled wells									
Paramount et al CAMERON M-73	60° 2' 51.9"	117° 29' 31.9"	DEL	1,653.3		22-Feb-13	25-Feb-13	S	PL4
Paramount et al LIARD K-29A	60° 28' 41.0"	123° 35' 4.1"	DEV	3,610.8		13-Sep-13	28-Sep-13	S	PL9
Central Mackenzie Valley									
New Wells									
COPRC LOON CREEK O-06	65° 05' 51.5"	127° 0' 30.7"	EX	1,850	1850	26-Jan-13	20-Feb-13	S	EL470
MGM – Shell EAST MACKAY I-78[1]	64° 47' 42.1"	125° 43' 18.3"	EX	1,995.3	1995.3	27-Jan-13	16-Mar-13	S	EL466
COPRC MIRROR LAKE N-20	64° 59' 46.8"	126° 48' 14.6"	EX	2,140	2104	25-Feb-13	30-Mar-13	S	EL470
COPRC DODO CANYON E-76	65° 05' 27.0"	126° 59' 58.0"	EX	2,910	212	28-Dec-13	23-Jan-14	S	EL470
Re-Entries of previously drilled wells									
Husky LITTLE BEAR N-09	64° 58' 55.2"	126° 31' 20.2"	EX	1,867.5		27-Jan-13	21-Mar-13	S	EL494
Husky LITTLE BEAR H-64	64° 53' 28.5"	126° 11' 20.3"	EX	1,340.8		13-Feb-13	17-Mar-13	S	EL494

[1] Class: EX=exploratory, DEL=delineation, DEV=development, TEST=test hole

[2] Status: S=suspended, A=abandoned, PR=production, Re-A=Re-Abandoned

[3] Interest: EL=Exploration Licence, SDL=Significant Discovery Licence, PL=Production Licence

[4] Drilling and completions included in the reported time period

Figure 4: Wells Drilled 2003-2004 to 2012-2013

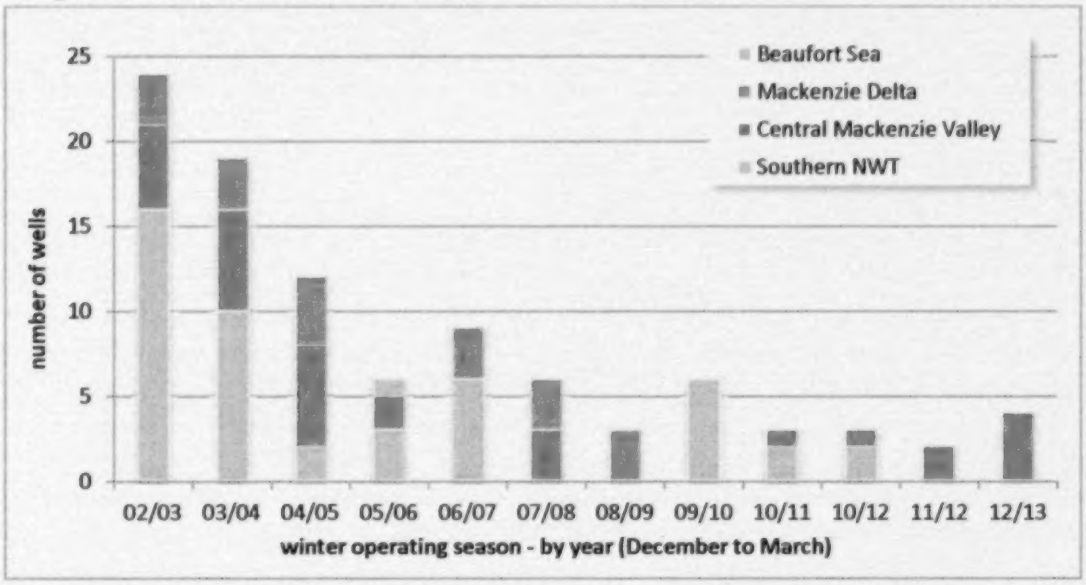


Table 6: Seismic Acquisition 2004-2013

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
2D Seismic (in Km)	189	564	3,917	6,028	12,684	1,488	6,165	59.5	837	71
3D Seismic (in Km^2)	804	635	1,100	0	1,638	1,577	0	0	3,796	0

PRODUCTION

Three fields produced oil and/or gas in the Northwest Territories in 2013: the Norman Wells field in the Central Mackenzie Valley, the Ikhil gas field on the Mackenzie Delta, and the Cameron Hills field southwest of Hay River in the southern Northwest Territories.

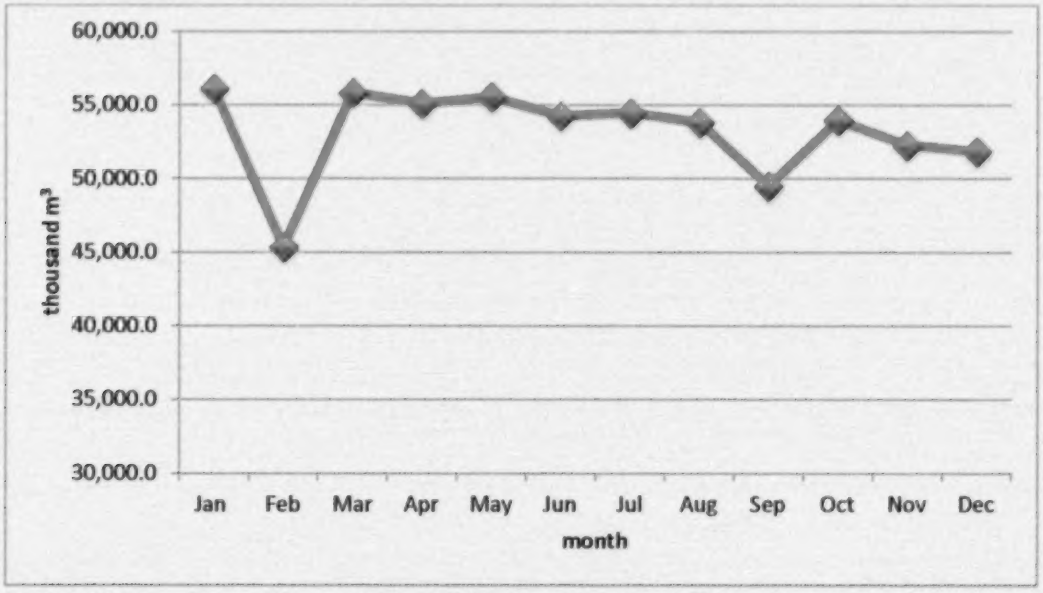
Norman Wells

Imperial Oil's Norman Wells field in the Central Mackenzie Valley is the northern anchor for the Norman Wells oil pipeline which terminates in Zama, Alberta. This major oil field was discovered in 1920 and continues to produce oil. The field was fully developed in the early 1980s and has produced continuously since 1985, although there were earlier periods of limited production. See Figure 5.

The Norman Wells oil field was discovered in 1920 and continues to produce oil

The Norman Wells field saw a 14% decrease in oil production in 2013, compared to the 2012 level. This decrease was mainly due to impacts of a power outage event in February and natural reservoir decline.

Figure 5: Norman Wells Oil Production 2013



Ikhil

Gas from the Ikhil field on the Mackenzie Delta is produced from one well and delivered through a 50-kilometre pipeline to Inuvik, where it is used for power generation and heating. The field is operated by AltaGas Ltd.

Production at the Ikhil field was reduced this year to conserve reservoir pressure. Lower production means that gas from this field is now used as a back-up rather than as the primary source of natural gas for the community.

Cameron Hills

In 2013, the only field producing from the southern Northwest Territories was the Cameron Hills field, operated by Strategic Oil and Gas Ltd. Effective April 2013, Strategic Oil and Gas Ltd acquired Paramount Resources Ltd.'s Cameron Hills assets. The Cameron Hills field produces both oil and gas, which are delivered by pipeline south to the Bistcho area of northern Alberta.

Production at the Cameron Hills field continues to decline due mainly to wells that have been shut in and the natural decline in production volumes. In 2013 the Cameron Hills field saw a 16% decline in gas production from the 2012 level. This was due to reservoir natural decline and Bistcho gas plant downtime. There was a slight increase in oil production.

Production from the field in the Fort Liard area continues to be suspended.

Nunavut and Arctic Offshore

There are no producing fields in Nunavut or in offshore Arctic waters.

An overall production of 4.1 million barrels of oil and 4.7 billion cubic feet of natural gas

Summary

The total aggregate oil production in 2013 was of 4.1 million barrels (654.4×10^3 m^3), a 13% decrease from 2012. Total aggregate natural gas production in the Northwest Territories in 2013 was of 4.7 billion cubic feet (133.0×10^6 m^3), an 18 % decrease from the previous year. Sixty-four percent of the gas produced was associated with oil production at the Norman Wells field and was used for field operations. Table 7 outlines oil and gas production data in the Northwest Territories.

Table 7: Oil and Gas Production 2010-2013

	2010	2011	2012	2013	2012-2013 % change
Oil Production (thousands of cubic metres)					
Norman Wells (Imperial Oil)	840.7	588.2	740.9	638.1	-13.88%
Cameron Hills (Strategic)	31.4	20.4	15.5	16.4	5.81%
Total	872.1	608.6	756.4	654.5	-13.47%
Gas Production (millions of cubic metres)					
Norman Wells (Imperial Oil)	101.4	86.4	100.1	84.5	-15.58%
Ikhil (AltaGas)	17.7	17.0	10.0	4.0	-59.70%
Cameron Hills (Strategic)	59.4	60.9	52.7	44.5	-15.56%
Total	178.5	164.3	162.8	133.0	-18.29%

Figure 6: Oil Production 2004-2013

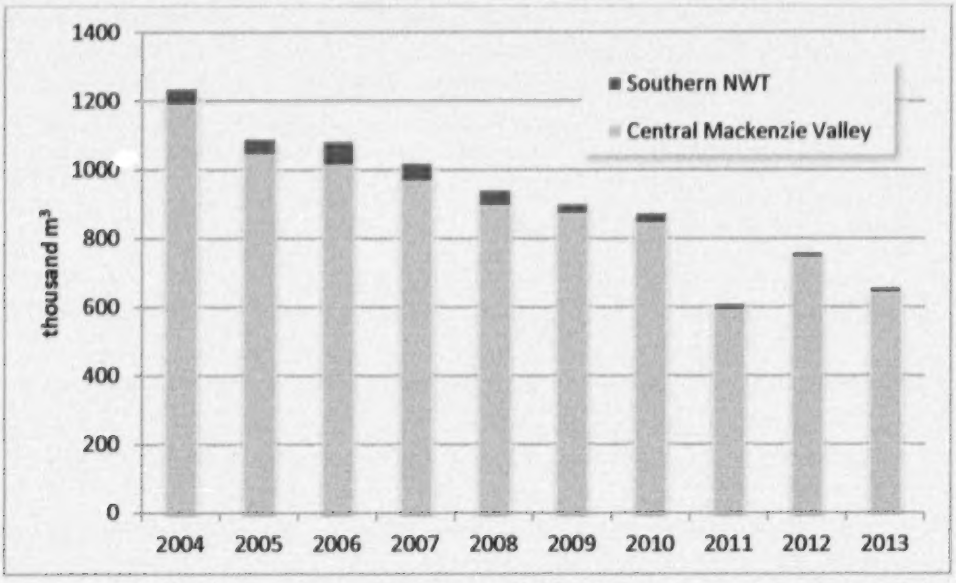
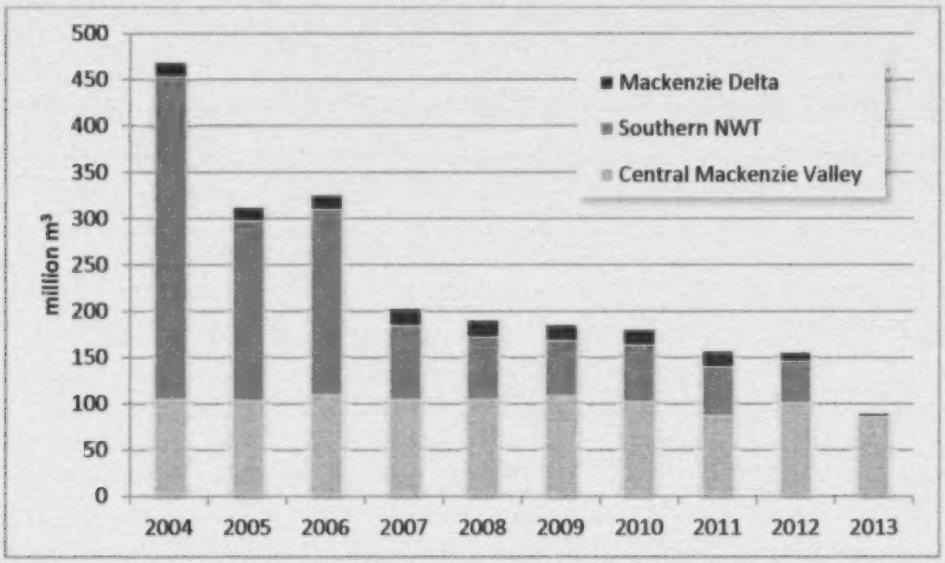


Figure 7: Natural Gas Production 2004-2013



ROYALTIES

Royalties received in the 2013 calendar year from oil and gas production on frontier lands amounted to $10,046,685. Despite lower production, this represents a 1% increase from 2012. See Table 8.

Table 8: Royalties ($) Received 2009-2013

	2009 [2]	2010	2011	2012	2013
Royalty [1]	18,876,656	15,762,287	11,652,548	9,992,786	10,046,685

- [1] Note: Royalty from the Ikhil field is not included. Ikhil lies on Inuvialuit Lands and is administered on behalf of the Inuvialuit pursuant to section 7(94) of the *Inuvialuit Final Agreement*.
- [2] 2009 revenue includes a deposit of $4 million from an interest holder against an estimated royalty assessment resulting from an audit. This audit was completed in December 2010 and an assessment was issued in March 2011. The final amount owed to the Crown was received in 2011.

Royalties received in 2013 totaled more than $10 million

AUDITS AND ASSESSMENTS

The Department manages a risk-based audit and royalty assessment program, where royalty submissions are regularly monitored, periodically reviewed and selected for audits. The audit objective is to obtain reasonable audit assurance that the sales revenues and expenses claimed on the monthly oil and gas production were reported accurately in the computation of royalties paid to the Crown.

In 2013, two new audits were undertaken during the year.

FURTHER INFORMATION

NORTHERN PETROLEUM AND MINERAL RESOURCES BRANCH

Please visit our website at *www.aadnc-aandc.gc.ca/nth/og/index-eng.asp*.

To obtain further information, please contact appropriate individuals below by phone or in writing.

Mailing address:
Petroleum and Mineral Resource
Management Directorate
Aboriginal Affairs and Northern
Development Canada
OTTAWA ON K1A 0H4

Courier only:
Petroleum and Mineral Resource
Management Directorate
Aboriginal Affairs and Northern
Development Canada
10 Wellington Street
GATINEAU QC K1A 0H4
Telephone: 819-953-2087
Fax: 819-953-5828

Information on the resource management regime, calls for nominations and bids, and other related information: Manager, Land Tenure – Telephone: 819-934-9392

Information on registration procedures and regulations, exploration, significant discovery and production licences, transfers, and notices: Registrar – Telephone: 819-997-0048

Information on Northern Petroleum and Mineral Resources Directorate Maps, and Geographic Information System (GIS) Data: Geomatics Officer – Telephone: 819-934-9394

Information on northern exploration history and geological / geophysical activities: Senior Petroleum Geologist – Telephone: 819-953-8722

Information on royalty policy and royalty submissions: Manager, Fiscal Policy and Royalty Administration – Telephone: 819-953-3267

Information on Benefits Plan requirements for Nunavut and northern offshore: Policy Analyst– Telephone 819-934-2244

OTHER SOURCES OF INFORMATION

National Energy Board

•The Operations Business Unit regulates the exploration, development and production of hydrocarbon resources in non Accord frontier lands under the *Canada Petroleum Resources Act*, the *Canada Oil and Gas Operations Act*, and the *National Energy Board Act*.

•The Frontier Information Office provides access to maps, technical information, geological and geophysical reports, well history reports and records.

National Energy Board
444 Seventh Avenue SW
CALGARY AB T2P 0X8
Telephone: 403-292-4800

Website: *www.neb.gc.ca/*

Northwest Territories Geosciences Office

Undertakes research to assess hydrocarbon potential of sedimentary basins in the Northwest Territories and provides data, general information and advice on petroleum geosciences.

Website: *www.nwtgeoscience.ca*

Geological Survey of Canada

The Geological Survey of Canada Calgary provides public viewing and sampling facilities for cores and samples, and information on wells drilled north of 60 at its offices at:

Geological Survey of Canada Calgary
3303-33rd Street NW
CALGARY AB T2L 2A7
Telephone: 403-292-7000

Information on geosciences in the Baffin Bay – Davis Strait region is available from:

Geological Survey of Canada Atlantic
Bedford Institute of Oceanography
PO Box 1006
DARTMOUTH NS B2Y 4A